

B. Claim Listing

The following listing of the claims replaces all prior versions and listings of the claims in the application.

1. (Currently Amended) A method for determining controlling a fan speed for of at least one fan used to cool a payload of a host system, the method comprising:
receiving a first signal indicative of a [[first]] fan speed;
receiving a second signal indicative of a system temperature of the host system;
selecting a temperature setpoint based on the [[first]] fan speed using a speed-
setpoint droop characteristic, the speed-setpoint droop characteristic comprising a
plurality of fan speed values and corresponding temperature setpoint values; and
computing a [[first]] fan speed output for controlling the speed of the at least one
fan based on a comparison of the host system temperature and the selected
temperature setpoint.

2. (Cancelled)

3. (Currently Amended) The method of claim [[2]]1, further comprising
determining the speed-setpoint droop characteristic prior to selecting the temperature
setpoint.

4. (Currently Amended) The method of claim 3, wherein determining the speed-
setpoint droop characteristic includes comprises:
selecting a range of ambient temperature operation of the host system;
defining an ideal speed-temperature characteristic for the selected range of
ambient temperature operation;
determining a first approximation of the speed-setpoint droop characteristic and a
corresponding measured speed-temperature characteristic;
comparing [[a]] the measured speed-temperature characteristic associated with
the speed-setpoint droop characteristic to the ideal speed-temperature characteristic;
and

~~iteratively adjusting the speed-temperature characteristic associated with the speed-setpoint droop characteristic by adjusting the first approximation of the speed-setpoint droop characteristic based on the comparison such that the measured speed-temperature characteristic approximates is caused to approximate the defined ideal speed-temperature characteristic.~~

5. (Currently Amended) A method for determining a speed-setpoint droop characteristic for adjusting a temperature setpoint of a temperature control loop based on fan speed, the method comprising:

selecting a range of ambient temperature operation of a host system, the host system comprising at least one fan controlled by the temperature control loop;

defining an ideal speed-temperature characteristic for the selected range of ambient temperature operation;

determining a first approximation of the speed-setpoint droop characteristic and a corresponding measured speed-temperature characteristic;

comparing [[a]] the measured speed-temperature characteristic associated with the speed-setpoint droop characteristic to the ideal speed-temperature characteristic; and

~~iteratively adjusting the speed-temperature characteristic associated with the speed-setpoint droop characteristic by adjusting the first approximation of the speed-setpoint droop characteristic based on the comparison such that the measured speed-temperature characteristic approximates is caused to approximate the defined ideal speed-temperature characteristic.~~

6. (Currently Amended) A thermal management system for controlling a temperature within a host system, the thermal management system comprising:

at least one fan control module (FCM), each FCM comprising:

a temperature sensor;

at least one fan; and

a microcontroller in communication with the temperature sensor and the at least one fan, wherein the microcontroller is for:

receiving a first signal indicative of a [[first]] fan speed from the at least one fan;

receiving a second signal indicative of [[a]] the host system temperature from the temperature sensor;

selecting a temperature setpoint based on the [[first]] fan speed using a speed-setpoint droop characteristic, the speed-setpoint droop characteristic comprising a plurality of fan speed values and corresponding temperature setpoint values; and

computing a [[first]] thermal control loop fan speed output based on a comparison of the host system temperature and the selected temperature setpoint.

7. (Cancelled)

8. (Currently Amended) The system of claim [[7]]6, wherein the predetermined speed-setpoint droop characteristic is stored in a memory associated with of the microcontroller.

9. (Currently Amended) The system of claim [[8]]6, further comprising a plurality of FCMs interconnected via a bus, wherein the microcontroller is further for:

receiving via an external bus the bus a third signal having a voltage value associated therewith, the voltage value indicative of a highest requested thermal control loop fan speed of the FCMs; and

~~computing a second fan speed output based on the third signal.~~

10. (Currently Amended) The system of claim 9, wherein the microcontroller is further for:

receiving a fourth signal indicative of a manual fan speed; and
~~computing a third fan speed output based on the manual speed.~~

11. (Currently Amended) The system of claim 10, wherein the microcontroller is further for generating a speed demand signal based upon one of the ~~first speed output~~,

~~the second fan speed output, and the third fan speed output~~ thermal control loop fan speed, the highest thermal control loop fan speed of the FCMs, and the manual fan speed.

12. (Original) The system of claim 11, wherein the speed demand signal is a PWM signal having a period and a duty cycle associated therewith.

13. (Currently Amended) The system of claim 12, wherein the microcontroller is further for calculating a voltage value based upon the duty cycle of the speed ~~request~~ demand signal.

14. (Currently Amended) The system of claim [[13]]12, further comprising:
a PWM fan drive for receiving the speed demand signal and generating a power output signal in response thereto, wherein the power output signal is transmitted to the at least one fan; and
~~a PWM filter for generating a scaled filtered speed demand signal, the PWM filter including a diode gate circuit for gating the scaled filtered speed demand signal onto the external bus.~~